REMARKS

Claims 1 and 3 through 15 were rejected under 35 U.S.C. § 103 for obviousness predicated upon Yamazaki et al. in view of Wolf et al.

In the statement of the rejection the Examiner admitted to a litany of gaps between the claimed invention and the methodology of Yamazaki et al. In order to bridge the major gap, which is more like a chasm, the Examiner concluded that one having ordinary skill in the art would have been motivated to modify the **particular** methodology of Yamazaki et al. by providing silicon nitride layers on the main surface of the semiconductor substrate on each side of the poly silicon gate electrode precursor in view of Wolf et al. This rejection is traversed.

Applicants respectfully submit that the imposed rejection is not factually or legally viable for several reasons. Simply put the Examiner:

1. failed to establish the requisite realistic motivation;
2. misinterpreted Applicants' arguments; and
3. ignored the clear **teaching away** from the claimed invention the primary reference to Yamazaki et al.

1. There is no motivation.

As argued in the responsive Amendment submitted April 12, 2005, in order to establish the requisite realistic motivation, the Examiner must make **clear and particular factual findings** as to a specific understanding or specific technological principle and then, based upon such **facts**, explain **why**, repeat **why,** one having ordinary skill in the art would have been realistically motivated to modify the **particular** methodology of Yamazaki et al. to arrive at the claimed invention. *In re Lee, 237 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002); Ecolochem Inc. v. Southern California Edison, Co. 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); In re*

Kotzab, 217 F.3d 1365, 55 USPQ 1313 (Fed. Cir. 2000); In re Dembiczak, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). This burden has not been discharged.

Specifically, in responding to Applicants' arguments, the Examiner states in the paragraph bridging pages 7 and 8 of the June 27, 2005 Office Action:

> . . . it takes the disclosure of Wolf to realize that based on the conventionally well-known properties of silicon nitride, such as, its barrier against diffusion, its ability to withstand severe environmental stress, coverage of metal, and deposition with acceptably low pinhole densities, the silicon nitride material makes a reliably useful masking layer for selective oxidation, for the purpose of controlling and preventing oxidation upon selected regions.

The above statement is nothing more than a judicially condemned generalization divorced from the realities of the particular factual situation and incompatible with the objectives of the primary reference to Yamazaki et al. *In re Rouffet, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998).*

The Examiner either misunderstands or ignores what Yamazaki et al. actually teach and what Wolf et al. actually teach. Wolf et al. disclose a conventional method for forming an **isolation region**. A masking layer is formed for preventing oxidation in areas where oxidation is not desired. What that has got to do with Yamazaki et al. remains a mystery on this record This is because Yamazaki et al. do **not** seek to oxidize any selective portion of a semiconductor substrate. This has already been done. **The substrate has already been oxidized.** What Yamazaki et al. seek to do is to **further oxidize** portions of the already formed oxide layer 112 illustrated in Fig. 5(A) as clearly shown in Fig. 5(B).

When considering the objectives of each of the references, it becomes apparent that the Examiner's conclusion is without technological logic. Again, Wolf et al. disclose the use of silicon nitride to **mask** the surface of the silicon substrate to **prevent oxidation** in the mask areas while selectively oxidizing certain portions of the substrate to form an isolation region.

Yamazaki et al. begin with an oxidized substrate and **further oxidize**, repeat **further oxidize**, the substrate along with the gate electrode. **Nothing is selectively oxidized. Everything is oxidized. There is no need for any masking layer, silicon nitride or otherwise.**

Based upon the foregoing it should be apparent that the Examiner simply failed to provide the requisite factual basis to support the asserted motivational. *Teleflex Inc. v. Ficosa North America Corp., 299 F.3d 1313, 63 USPQ2d 1374.*

Moreover, the Examiner's proposed modification of Yamazaki et al. is antithetic to the expressed objectives of Yamazaki et al. As pointed out in the April 12, 2005 responsive Amendment, based upon column 6 of Yamazaki et al., lines 1 through 7, "...the silicon substrate **below** the oxide film 112 comprised of silicon oxide is **newly oxidized**...." This is no small matter to Yamazaki et al. because it **eliminates problems** attendant upon **surface irregularities**, as apparent from the ultimate sentence of the paragraph bridging columns 5 and 6 which reads as follows:

> A surface irregularity in a small extent as in the present case has no particular problem on the resulting semiconductor element.

Clearly, one having ordinary skill in the art would **most certainly not** have been realistically motivated to cover up and protect from oxidation silicon oxide film 112 illustrated in Fig. 5(A) of Yamazaki et al., because that would **prevent what Yamazaki et al. want – a newly formed** silicon oxide film 115 and oxidation of the silicon substrate below oxide film 112 to remove surface irregularities. In other words, one having ordinary skill in the art would **not** have been motivated to modify the particular methodology of Yamazaki et al. by providing a silicon nitride film on oxide film 112 on each side of the gate precursor 111 because this is **antithetic**, repeat **antithetic**, to the expressed objective of Yamazaki et al. to achieve a silicon substrate

having a surface which "...is sufficiently smooth." (Sentence bridging columns 5 and 6 of Yamazaki et al.). It is well settled that one having ordinary skill in the art can **not** be realistically motivated to modify a reference in a manner **inconsistent** with the disclosed objective. See, for example, *In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992); In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); In re Schulpen, 390 F.2d 1009, 157 USPQ 52 (CCPA 1968).*

Regrettably the Examiner totally ignored the above argument. The Examiner simply refuses to come to grips with the expressed objective of Yamazaki et al. to oxidize the substrate by insisting that one having ordinary skill in the art would have somehow been lured to form a silicon nitride layer on the already formed oxide layer to prevent further oxidation and, thereby **frustrate the objectives of Yamazaki et al.** This is contrary to law. *In re Fritch supra, In re Gordon, supra, In re Schulpen supra.*

2. The Examiner misinterpreted Applicant's arguments.

In the only full paragraph on page 9 of the April 12, 2005 Office Action, Appellants argued that Wolf et al. employ a silicon nitride layer as a masking layer for oxidation when forming isolation regions. Appellants then stated: "In other words, the disclosed technique (the technique disclosed by Yamazaki et al.) is employed for **oxidizing** a selective portion of a semiconductor substrate". (original emphasis).

The Examiner recognizes Applicants' arguments and, in the second sentence of the paragraph bridging pages 7 and 8 of the June 27, 2005 Office Action, states that there is no claim limitation "oxidizing a selective portion of a semiconductor substrate".

It should be apparent that Appellants were not arguing that the now claimed invention involves selective oxidation of a portion of a substrate, because it doesn't. Rather, that is what Wolf et al. teach because they disclose formation of an isolation region which, as one having ordinary skill in the art would have understood, involves oxidizing a selective portion of a substrate, i.e., the portion of the substrate where an isolation region is formed. **Accordingly, the Examiner clearly misunderstood Applicants' arguments which remain unrebutted on this record.**

3. Yamazaki et al. teach away from the claimed invention.

There can be no doubt that Yamazaki et al. **teach away** from the claimed invention by seeking to **reoxidize the substrate**. Formation of a silicon nitride layer thereon would **prevent** such oxidation, as apparently recognized by the Examiner. This **clear teaching away** from the claimed invention by the primary reference to Yamazaki et al. constitutes a potent indicia of **non-obviousness** which the Examiner has not considered. *Ecolochem Inc. v. Southern California Edison, Co. supra; In re Bell, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); Specialty Composites v. Cabot Corp., 845 F.2d 981, 6 USPQ2d 1601 (Fed. Cir. 1988); In re Hedges, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); In re Marshall, 578 F.2d 301, 198 USPQ 344 (CCPA 1978).*

Conclusion

Based upon the foregoing it should be apparent that a *prima facie* basis to deny patentability to the claimed invention has not been established for lack of the requisite fact-based realistic motivation. Moreover, upon giving due consideration to the **clear teaching away** from

the claimed invention by the primary reference to Yamazaki et al., the conclusion appears inescapable that one having ordinary skill in the art would **not** found the claimed subject matter as a **whole** obvious within the meaning of 35 U.S.C. § 103. *In re Piasecki, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).*

Applicants, therefore, submit that the imposed rejection of claims 1 and 3 through 15 under 35 U.S.C. § 103 for obviousness predicated upon Yamazaki et al. in view of Wolf et al. is not factually or legally viable and, hence, solicit withdrawal thereof.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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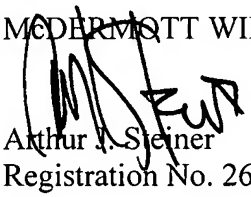

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